The Practice of Game Play as the Foundation of Learning and Performance in Handball

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Abstract

Modern handball requires players to make decisions in fractions of a second, adapt to changing scenarios, and maintain stable performance under pressure. However, traditional training models, based on analytical exercises and decontextualized repetitions, create a gap between what is trained and what is needed in competition. This article proposes an integrative model that places the practice of game play in real situations as the fundamental axis of learning and performance. Grounded in complex systems theory, intentional pedagogy, the Integral Zone of Proximal Development (IZPD), and recursion, seven competitive game models are presented that cover all performance dimensions (technical, tactical, physical, psychological, and relational). Their progressive application across the initiation, development, and performance levels is detailed. The proposed model accelerates learning transfer, fosters tactical autonomy and creativity, and satisfies players' human needs, transforming training into an ecosystem of holistic development.

Keywords: handball, situational game, intentional pedagogy, IZPD, complex systems, transfer, decision-making.

1. Introduction

Handball is a team sport characterised by high unpredictability, rapid transitions between offensive and defensive phases, and a constant demand for perceptual and cognitive agility. In this context, performance does not emerge from the mere sum of individual skills, but from the integration of motor competencies and the collective capacity to organise space and time in response to the opponent's behaviour.

For decades, handball training has been dominated by an analytical-linear approach: the game is broken down into parts (passing, shooting, individual defence, tactical system) that are trained separately, often without real opposition, and later reassembled in the match. This model presents three fundamental problems: (a) it breaks the perception-action coupling, because the

player learns to execute movements without knowing when, where, or against whom to apply them; (b) it dilutes intentionality, because the exercises do not answer the question *what for?*; and (c) it generates poor transfer, because what is learned in isolation does not emerge in competition (Davids et al., 2013; Chow et al., 2016; Mascarell, 2026).

In contrast, contemporary research in sport sciences has proposed a shift towards **ecological dynamics** and **nonlinear pedagogy**, which conceive learning as a self-organising process that emerges from the interaction between the player and the environment (Araújo & Davids, 2009; Renshaw et al., 2019). Within this framework, training must preserve **ecological representativeness** (Pinder et al., 2011): tasks must maintain the informational, spatial, temporal, and relational constraints of competition.

This article proposes an integrative model that places **game play in real situations** as the axis of learning and performance in handball. It is founded on four theoretical pillars: (a) complex systems theory, (b) intentional pedagogy and the Integral Zone of Proximal Development (IZPD), (c) recursion as a pattern of deep learning, and (d) polyphonic dialogue as a mediation tool. Based on these foundations, seven competitive game models are presented, with their justification in the technical, physical, and psychological dimensions, and their progressive application according to the training level. The design of these models draws on the contributions of specialists in sports education such as Philippe Pinaud and Claude Bayer in handball, Dean Smith in basketball, Horst Wein in football, and Jia Yi Chow in sports pedagogy, whose ideas are integrated into each game situation.

2. Theoretical Foundations

2.1. Handball as a Complex Dynamic System

From complex systems theory, handball is defined by properties that make it unpredictable and adaptive: (a) **non-linearity**: small changes can generate large effects and vice versa; (b) **emergent properties**: team performance is not the sum of individual skills, but emerges from synchronisation and collective adaptation; (c) **self-organisation**: teams tend to fall into habitual patterns (attractors), but can spontaneously reorganise in response to new demands (Thelen & Smith, 1994; Davids et al., 2008).

This view implies that training cannot be based on the repetition of isolated movements, but on the design of learning environments that foster exploration and adaptability (Chow et al., 2016). The **Constraints-Led Approach** is the main

tool: manipulating task constraints (number of players, space, rules) guides players towards specific solutions without direct instructions, promoting self-organisation and creativity (Newell, 1986; Renshaw et al., 2019). Chow, Davids and colleagues have shown that this approach is particularly effective for team sports, as it respects the open and dynamic nature of competition.

2.2. The Integral Zone of Proximal Development (IZPD)

The IZPD (Mascarell, 2026) extends the Vygotskian concept of Zone of Proximal Development (Vygotsky, 1978) by including four personal dimensions that condition learning:

- **Knowing**: declarative and procedural knowledge.
- **Being able**: technical, physical or cognitive capacities.
- **Wanting**: motivations, interests, emotions.
- **Believing**: self-efficacy expectations, attributions and beliefs.

Each dimension has its own zone of proximal development: what the player does alone and what they can do with help. Training in real situations allows simultaneous diagnosis of these four dimensions, because the real task brings to light mismatches that an analytical exercise would hide. The coach acts as a mediator, offering specific scaffolding in each dimension through questions and task adjustments (Mascarell, 2026b). For example, in systematic play, *knowing* is scaffolded (what procedure now?), while in self-directed play, *wanting* and *believing* are especially worked on.

2.3. Intentionality and Its Universal Functions

Intentionality is the fundamental property of living systems (Mascarell, 2026c): every action is goal-oriented, and unfolds through three universal functions: **reference** (identifying relevant elements), **validation** (evaluating the viability of the action), and **valence** (assigning an affective-motivational charge). In handball, every action integrates these three functions; training in real situations keeps them intact, while analytical exercises fragment them, generating incomplete learning.

Claude Bayer (1986, 1987) applied this idea to team sports, establishing that **tactical intentions are the fundamental element of the game**. He proposed that the coach and the player should ask themselves the key questions that operationalise the three universal functions:

- *What?, Where?, With whom?* → activate *reference* (identification of the environment).

- *How?, When?, Against whom?* → activate *validation* (evaluation of viability).
- *Why?, What for?* → activate *valence* (meaning and motivation).

These questions, formulated in the context of real play, allow players to make their intentions explicit and improve their decision-making. This approach, which Bayer called **pedagogy of intentions**, transforms learning into a guided discovery process, where the player builds their understanding of the game from meaningful questions, rather than receiving closed instructions.

2.4. Recursion as a Pattern of Deep Learning

Recursion is a pedagogical foundation that gives meaning to activity (Mascarell, 2026d) and demonstrates that meaningful learning is not accumulative but recursive: the subject folds their experience upon itself, reorganising their understanding at higher levels. Bateson (1972) distinguished three levels:

- **Learning I**: change in response within a fixed context.
- **Learning II**: change in the learning process itself (learning to learn).
- **Learning III**: change in the premises of learning itself, questioning one's worldview.

Game play in real situations, due to its variability, is the natural environment for these recursive loops to occur. Each possession, each match, offers an opportunity to fold experience and emerge with a more complex understanding. For example, in the rival simulation model, players must anticipate the opponent's intentions and adjust their responses, which activates a recursive loop of level II (learning to read the opponent) and even level III (questioning their own tactical premises). Similarly, the positional rotation game forces the player to reconsider their global understanding of the game by experiencing different roles, promoting deep and transformative learning.

2.5. Polyphonic Dialogue as Relational Scaffolding

Polyphonic dialogue (Bakhtin, 1981; Sidorkin, 2007) is a type of educational communication where multiple voices coexist without reduction. In contrast to the coach's monologue (which imposes) and dialectics (which confronts positions so that one prevails), polyphonic dialogue welcomes the diversity of perspectives, makes them resonate with each other, and from that resonance a richer understanding emerges.

In game-based training, the coach is not a director giving continuous instructions, but a **mediator who asks, listens, and helps players make their**

intentions explicit, contrast them with those of others, and find collective solutions. This approach transforms external motivation into internal motivation and accelerates the internalisation of learning (Mascarell, 2026e). In practice, polyphonic dialogue materialises in the pre- and post-session discussions of the self-directed and rival simulation models, where players share their perceptions and jointly construct the strategy. It is also key in systematic play, where coordination among teammates requires continuous information exchange.

2.6. Human Needs as a Normative Basis

In the set of human needs (Mascarell, 2025), a distinction is made between needs (limited, universal, healthy) and desires (unlimited, insatiable, often harmful). A team that satisfies personal needs (autonomy, competence), social needs (belonging, recognition), and environmental needs (contact with nature, healthy spaces) generates cohesion, intrinsic motivation, and sustainability (Ryan & Deci, 2017).

Game play in real situations, when designed with attention to these needs, not only improves performance but also cultivates the holistic well-being of players. For example, the self-directed model satisfies the need for autonomy; the positional rotation game fosters belonging by increasing empathy and understanding among teammates; and free play or rotational games allow ludic contact with the playing space, addressing environmental needs. In this way, training becomes an ecosystem where competitive demands and human development are not contradictory but complementary.

3. Methodology: The Seven Competitive Game Models

Based on the theoretical foundations and practical experience, seven game models are proposed that cover all performance dimensions. Each model is justified in its contributions to technical, physical, and psychological preparation, and is connected with the ideas of specialists who have worked in similar contexts.

3.1. Numerical Inequality Game

Description: Simulates numerical superiority (7×6, 6×5) or inferiority (6×7, 5×6) situations, common due to temporary exclusions. Played with official rules and a time limit (20–25 s) for the attack.

Dimension	Contributions
Technical	Improved passing accuracy in tight spaces; oriented reception under pressure; jump shot with less opposition or with more pressure.
Physical	Speed endurance (constant rhythm changes); explosive strength in cuts and shots; recovery capacity between maximal efforts.
Psychological	Pressure management in "obligation" (scoring in superiority) or "survival" (defending in inferiority) situations; frustration tolerance; communication and leadership.

Theoretical connection: Allows diagnosis of *wanting* (do they take risks or play safe?) and *believing* (do they trust they can score in 6×5?). The time limit acts as a constraint guiding offensive self-organisation. Bayer's questions such as *when?* and *against whom?* become especially urgent, as numerical imbalance requires quick decisions on whom to attack and when. Pinaud notes that these situations train "peripheral vision" and creativity under pressure.

3.2. Score-Time Dependent Game

Description: Simulates the last minutes of a match with different scores (advantage, disadvantage, draw) and remaining time (5 min, 2 min, 30 s). Includes goalkeeper-player situations.

Dimension	Contributions
Technical	Ball control in long possessions; quick and accurate shooting; goalkeeper-player technique.
Physical	Capacity for intermittent high-intensity effort; resistance to fatigue to maintain execution quality.
Psychological	Management of anxiety and competitive stress; decision-making under time pressure; selective attention to relevant cues.

Theoretical connection: Bayer's questions *why?* and *what for?* become explicit and urgent: each possession has a clear purpose according to the score.

Polyphonic dialogue allows consensus on strategy. Dean Smith highlighted end-game management as key to success.

3.3. Systematic Game

Description: Works on positional attack against an organised defence and defensive retreat after loss. Collective strategic procedures are automated (offensive and defensive systems, orientation changes, blocks, etc.).

Dimension	Contributions
Technical	Execution of combined procedures (blocks, crosses, overlaps); passing in motion and at different heights.
Physical	Competition-specific load; coordinated movements that optimise energy expenditure.
Psychological	Shared knowledge (knowing what each teammate will do); trust in the system and the group.

Theoretical connection: This is deliberate practice (Ericsson & Pool, 2016) applied to the real context. The coach scaffolds *knowing* (what procedure now?) and *being able* (how to execute it correctly?). Bayer's questions such as *with whom?* and *how?* are central to coordinating blocks and crosses. Claude Bayer structured the game around conservation, progression, and finalisation, principles that this model materialises.

3.4. Transition Game

Description: Trains the counterattack (offensive transition) and defensive balance (organised retreat) after ball loss or recovery. Initiated from the goalkeeper or from a defensive steal.

Dimension	Contributions
Technical	Pass in motion (long and accurate); reception oriented to shooting; finishing at speed.

Dimension	Contributions
Physical	Sprint speed over short distances; speed endurance; acceleration and deceleration capacity.
Psychological	Anticipation and reading of the play; decision-making in numerical superiority (3×2, 4×3); cooperation in small groups.

Theoretical connection: Perception-action coupling is maximal. The questions *where?, when?*, and *against whom?* must be answered in milliseconds to choose the best passing or finishing option. Dean Smith considered the counterattack and pressure defence as pillars of his system.

3.5. Self-Directed Game

Description: Players decide the strategy, line-ups, and substitutions during the game. The coach does not intervene in tactical decisions, only observes and, if anything, records for later feedback.

Dimension	Contributions
Technical	Expansion of technical repertoire (they try unsuggested solutions); technical adaptation to their own decisions.
Physical	Learning self-management of fatigue (knowing when to ask for a substitution); effort distribution according to the chosen strategy.
Psychological	Empowerment and sense of belonging; decision-making under responsibility; leadership development.

Theoretical connection: This is the direct application of Bayer's pedagogy of intentions: players must ask and answer the eight questions for themselves, without external mediation. Dean Smith defended this autonomy as key to integral formation. Horst Wein also promoted autonomous decision-making in his reduced games.

3.6. Rival Simulation Game

Description: One team faithfully reproduces the strategies, systems, and playing style of the next opponent. The other team rehearses responses and counter-procedures. Can be supported with videos.

Dimension	Contributions
Technical	Technical adaptation to rival styles; execution of specific counter-procedures.
Physical	Preparation for the opponent's intensity and game rhythm; transition work according to the rival's style.
Psychological	Tactical empathy (putting oneself in the opponent's shoes); mental anticipation; reduction of uncertainty in the real match.

Theoretical connection: Activates theory of mind (Wellman, 1990). The questions *against whom?* and *why?* are answered by anticipating the opponent's intentions. Pinaud emphasises perception and anticipation; this model takes them to the extreme. Chow highlights that task variability, such as simulating opposing styles, enriches the adaptive repertoire.

3.7. Positional Rotation Game (Defensive and Offensive)

Description: Matches where players systematically rotate through all defensive and offensive positions during the game (e.g., every 5 minutes or every goal). Played with official rules, without fixed tactical instructions, and the coach does not intervene during play. Rotation can be: (a) by draw, (b) decided by the players themselves, or (c) preset by the coach at the start of each period.

Dimension	Contributions
Technical	Development of **technical versatility** (each position demands specific movements); expansion of shooting, feints, and passing repertoire; improvement of coordination in all game situations.
Physical	Stimulation of **diverse physical qualities** (each position requires different profiles: speed for wings, strength for pivot, endurance for centre); injury prevention through overuse avoidance; development of **motor adaptability**.

Dimension	Contributions
Psychological	**Positional empathy** (understanding the difficulties and opportunities of each teammate); **increased creativity** when facing problems from new perspectives; **increase in individual and collective resource potential**; reduction of fear of failure by normalising experimentation; development of **global tactical intelligence**.

Theoretical connection: This model materialises the **polyvalence** that Horst Wein advocated in his "Football for Children" method, and connects with Pinaud's proposal on **perception and creativity**. Systematic rotation activates **recursion** (Bateson) at its deepest level: the player learns to play from the perspective of the other, questioning their own premises (Learning III). Bayer's questions such as *with whom?* and *where?* acquire new answers when changing roles, enriching the global understanding of the game. Claude Bayer, although more structured, recognised that knowledge of all positions improves tactical intelligence.

4. Application by Training Levels

The distribution of the seven models is adapted to the players' level and the number of weekly sessions, ensuring a progression in complexity and demand.

4.1. Initiation (8–12 years): 2–3 weekly sessions + match

Session	Models	Approach
Session 1	Positional rotation (7) + Basic transition (4)	Enjoyment, motor exploration, first concepts of counterattack and retreat. Positional rotation allows all children to experience all facets of the game, following Wein's and Pinaud's recommendations on early exploration.
Session 2	Very simplified systematic (3) +	Introduction to very basic procedures (wall pass, support to the ball carrier); fostering simple autonomy, in line with Dean Smith's

Session	Models	Approach
	Self-directed (5)	philosophy of giving responsibility to players from an early age.
Session 3 (optional)	Positional rotation (7) + Reduced inequality (1) (4×3)	Ludic reinforcement and first contact with superiority/inferiority in very reduced formats, maintaining rotation.

Very flexible rules (bouncing allowed, no step limit); **game occupies at least 70% of the time**; **everyone rotates through all positions**; **coach does not correct on the fly**.

4.2. Development (13–16 years): 3–4 weekly sessions + match

Session	Models	Approach
Session 1	Systematic (3) + Transition (4)	Automation of systems (3:3, 6:0, simplified 5:1); organised counterattack and retreat, applying Bayer's principles of conservation and progression.
Session 2	Inequality (1) + Score-time (2)	Training of critical situations: exclusions and end-game management with simulated scores, developing the emotional management capacity highlighted by Dean Smith.
Session 3	Self-directed (5) + Positional rotation (7)	Tactical autonomy and creativity; players decide systems and rotations, then explore freely, integrating Pinaud's view on creativity and Wein's on polyvalence.

Session	Models	Approach
Session 4 (optional)	Rival simulation (6) + Systematic (3)	Specific preparation for the weekend match, training anticipation and tactical adaptation.

More demanding instructions are introduced (time limits, partial prohibition of bouncing); **the coach uses scaffolding questions** (inspired by Bayer's eight questions); **polyvalence is worked on** (at least two positions); **polyphonic dialogue is incorporated** at the beginning and end.

4.3. Performance (17 years and above): 5–6 weekly sessions + match

Session	Models	Approach
Monday (systole)	Systematic (3) + Transition (4)	Maximum automation of complex systems (dynamic 4:2/3:3 attack, mixed defences); high physical demand.
Tuesday (diastole)	Self-directed (5) + Positional rotation (7)	Exploration and creativity; players design their strategy and rotations, freely experiencing all positions to expand their repertoire, following Pinaud's maxim that creativity arises from multifaceted perception.
Wednesday	Inequality (1) + Score-time (2)	High-pressure training: exclusions and management of the last 5 minutes with different scores.
Thursday	Rival simulation (6) + Systematic (3)	Specific preparation for the next match; faithful reproduction of the rival's style and rehearsal of responses, applying theory of mind and the variability proposed by Chow.

Session	Models	Approach
Friday	Controlled match (dress rehearsal)	Integration of all models in a friendly match with referee and scoreboard; minimal coach intervention.
Saturday (optional)	Positional rotation (7) or Self-directed (5) in reduced format	Low physical load and high cognitive-ludic intensity session; recovery and cohesion, with emphasis on tactical versatility.

All models are worked on with maximum representativeness (7×7, competition intensity); **the coach acts as mediator** with metacognitive questions (based on Bayer's scheme); **physical preparation is fully integrated**; **polyphonic dialogue is the backbone** of the session.

5. Discussion

5.1. Comparison with Traditional Models

The proposed model differs from traditional approaches in several key aspects. While analytical-linear training fragments the game into parts and trains them separately, the situational model maintains perception-action coupling and player intentionality. While the traditional approach prioritises repetition of gestures in standardised conditions, the situational model fosters variability and adaptability. And while the former generates poor transfer, the latter accelerates transfer by preserving the informational constraints of competition.

Research findings in other sports support this approach. In football, small-sided games and nonlinear pedagogy have been shown to improve decision-making and tactical understanding (Clemente et al., 2021; Renshaw et al., 2019), as proposed by Horst Wein with his FUNiño method. In basketball, learning has been shown to be more effective when tasks are representative and environmental constraints are manipulated (Correia et al., 2020), coinciding with Dean Smith's philosophy of prioritising ball circulation and collective intelligence. In rugby, integrative approaches that eliminate the "silos" between physical and tactical preparation improve sport-specific fitness and responsiveness to match unpredictability (Passos et al., 2016). Our model transfers these principles to handball with a practical taxonomy of seven game situations, additionally incorporating the specific contributions of Pinaud

(perception-creativity) and Bayer (pedagogy of intentions and his eight questions), which are integrated into all models as a guide for reflection and decision-making.

5.2. Advantages of the Proposed Model

The benefits of situational game-based training are multiple and supported by research:

1. **Direct transfer**: by training in representative conditions, players learn to perceive and act in a manner consistent with real match demands (Pinder et al., 2011).
2. **Contextualised decision-making**: each action responds to Bayer's questions (*what?, how?, when?, where?, why?, what for?, with whom?, against whom?*), giving meaning and purpose to each intervention.
3. **Intrinsic motivation**: the game satisfies the needs for autonomy, competence, and belonging (Ryan & Deci, 2017), reducing dropout.
4. **Integrated physical preparation**: load is regulated by manipulating game variables, avoiding separate sessions that break transfer (Mascarell, 2026b).
5. **Development of metacognition**: polyphonic reflection activates Learning II (Bateson), turning players into agents of their own development.
6. **Increased creativity and versatility**: positional rotation (model 3.7) expands individual and collective repertoire, as advocated by Pinaud and Wein.
7. **Global understanding of the game**: by experiencing all positions and asking themselves tactical questions from different roles, players develop a holistic tactical intelligence, as recognised by Bayer.

5.3. Limitations and Challenges

Implementing the model requires a change in the coach's role: from instructor to mediator, from speaker to active listener, from designer of closed exercises to architect of open situations. This demands specific training in dialogic competences and in designing representative tasks (Chow et al., 2016; Renshaw et al., 2019).

Pressure for immediate results may lead to prioritising analytical exercises that appear more "controllable". The solution is gradual implementation, starting with one weekly session of real play and progressively increasing.

Learning assessment must be ecological, focusing on indicators of decision-making, adaptability, and progress in the four dimensions of the IZPD (Mascarell, 2026), moving away from decontextualised tests.

Future research lines should address: (a) longitudinal comparative studies; (b) the relationship between game practice and retention of young players; (c) the predictive validity of ecological indicators; and (d) coach education in mediation and learning environment design.

6. Conclusions

1. Handball is a complex dynamic system that demands representative, adaptive, and decision-centred training. Traditional analytical-linear models create a gap between training and competition that slows learning and limits transfer.
2. Game play in real situations, grounded in complex systems theory, intentional pedagogy, IZPD, recursion, and polyphonic dialogue, constitutes the most effective means for learning and performance in handball.
3. The seven competitive game models proposed — numerical inequality, score-time, systematic, transition, self-directed, rival simulation, and positional rotation — cover all performance dimensions and adapt progressively to training levels.
4. The application of these models accelerates transfer, develops tactical autonomy and creativity, satisfies players' human needs, and transforms training into an ecosystem of holistic development. The contributions of Pinaud, Bayer, Dean Smith, Wein, and Chow reinforce the validity of this approach and offer concrete tools for its implementation.
5. Implementation requires a change in the coach's role towards that of mediator and designer of learning environments, as well as specific training in dialogic competences and representative task design.
6. Learning assessment must be ecological, focused on indicators of decision-making, adaptability, and progress in the four dimensions of the IZPD.

Game play as the foundation of training is not a pedagogical fad but an evolutionary necessity of modern handball. Training in real situations is, at its core, training the shared humanity that beats in every pass, every cut, every celebration, and every defeat.

References

- Araújo, D., & Davids, K. (2009). Ecological approaches to cognition and action in sport and physical education. *International Journal of Sport Psychology*, 40(1), 5-37.
- Bajtín, M. (1981). *The dialogic imagination*. University of Texas Press.
- Bandura, A. (1977). *Social learning theory*. Prentice Hall.
- Bateson, G. (1972). *Steps to an ecology of mind*. Chandler.
- Bayer, C. (1986). *La enseñanza de los juegos deportivos colectivos*. Barcelona: Hispano Europea.
- Bayer, C. (1987). *Técnica del balonmano: la formación del jugador*. Barcelona: Hispano Europea.
- Bayer, C. (1992). *La pedagogía de las intenciones en los juegos deportivos*. [Working paper].
- Chow, J. Y., Davids, K., Button, C., & Renshaw, I. (2016). *Nonlinear pedagogy in skill acquisition*. Routledge.
- Clemente, F. M., et al. (2021). Small-sided games in team sports training: A review. *Sports Medicine*, 51(2), 245-269.
- Correia, V., et al. (2020). Ecological dynamics and basketball. *Journal of Sports Sciences*, 38(11-12), 1271-1280.
- Davids, K., Araújo, D., Vilar, L., Esteves, P., & Correia, V. (2013). An ecological dynamics approach to the design of task constraints for enhancing decision-making in sport. *International Journal of Sport Psychology*, 44(5), 428-449.
- Ericsson, K. A., & Pool, R. (2016). *Peak*. Houghton Mifflin Harcourt.
- Mascarell, E. (2025). El conjunto de las necesidades humanas y la urgencia de la distinción entre necesidades y deseos. Internal document.
- Mascarell, E. (2026). Zona de Desarrollo Próximo Integral: fundamentos para la mejora de los procesos de enseñanza-aprendizaje. https://archive.org/details/zona-de-desarrollo-proximo-integral
- Mascarell, E. (2026b). Pedagogía intencional en la ZDPI: hacia una práctica educativa con sentido. https://archive.org/details/pedagogia-intencional-en-la-zdpi-hacia-una-practica-educativa-con-sentido
- Mascarell, E. (2026c). Hacia una psicología ecosistémica del acto. Internal document.
- Mascarell, E. (2026d). La recursividad como fundamento pedagógico. Internal document.
- Mascarell, E. (2026e). El diálogo polifónico como soporte para una pedagogía intencional en la ZDPI. Internal document.
- Newell, K. M. (1986). Constraints on the development of coordination. In M. G. Wade & H. T. A. Whiting (Eds.), *Motor development in children* (pp. 341-360). Martinus Nijhoff.
- Passos, P., et al. (2016). Ecological dynamics in rugby. *Journal of Sports Sciences*, 34(17), 1647-1655.

- Pinaud, P. (1996). *Voir et créer*. [Video tutorial].
- Pinaud, P. (2015). *Percepción y creatividad en el proceso de aprendizaje del balonmano*. STONBERG EDITORIAL.
- Pinder, R. A., Davids, K., Renshaw, I., & Araújo, D. (2011). Representative learning design and functionality of research and practice in sport. *Journal of Sport and Exercise Psychology*, 33(1), 146-155.
- Renshaw, I., Davids, K., & Savelsbergh, G. J. (2019). *Motor learning in practice*. Routledge.
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory*. Guilford Press.
- Sidorkin, A. (2007). *Las relaciones educativas*. Octaedro.
- Smith, D. (1992). *A coach's life*. Random House.
- Thelen, E., & Smith, L. B. (1994). *A dynamic systems approach to the development of cognition and action*. MIT Press.
- Vygotsky, L. S. (1978). *Mind in society*. Harvard University Press.
- Wein, H. (1995). *Fútbol a la medida del niño*. Real Federación Española de Fútbol.
- Wellman, H. M. (1990). *The child's theory of mind*. MIT Press.